



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,297	03/26/2004	Luigi Tallone	36030312 US02	9276

7590 01/18/2007
Paul D. Greeley, Esq.
Ohlandt, Greeley, Ruggiero & Perle, L.L.P.
10th Floor
One Landmark Square
Stamford, CT 06901-2682

EXAMINER

CHIEM, DINH D

ART UNIT	PAPER NUMBER
----------	--------------

2883

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/810,297

Applicant(s)

TALLONE ET AL.

Examiner

Erin D. Chiem

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 8-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 8-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

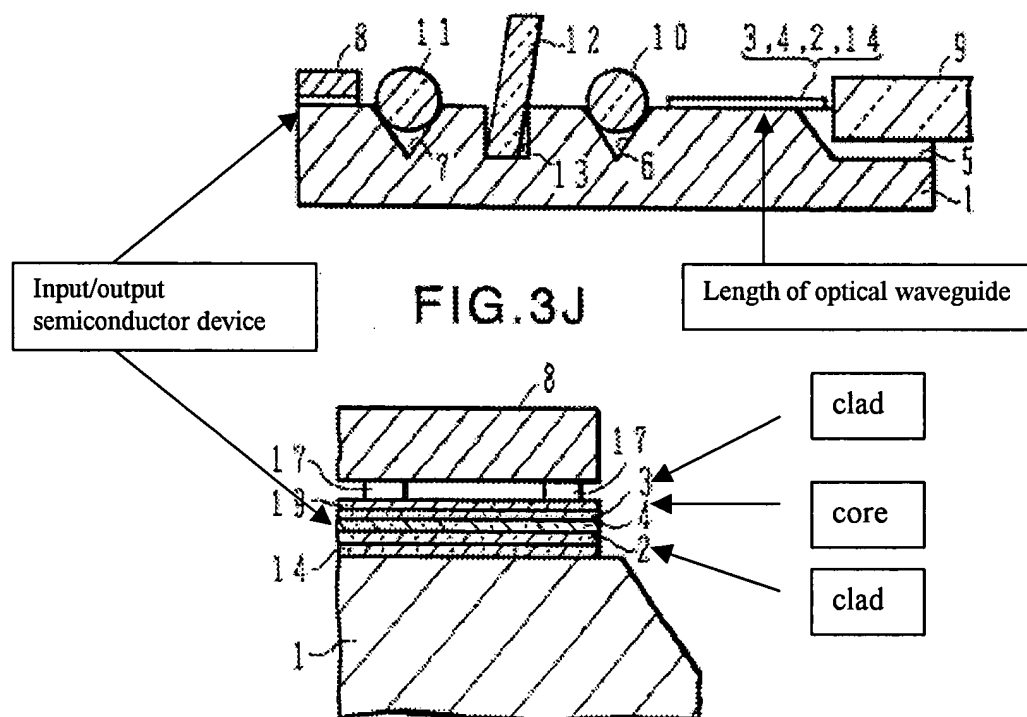
Claims 1, 2, 8-18, 21-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Tabuchi (US 5,481,629 hereafter “Tabuchi”).

Regarding claims 1 and 15, Tabuchi discloses a mounting arrangement comprising a substrate (1), referring to Fig. 2A, 2B, and 6, an input optical fiber (9) associated with said substrate an output optical waveguide (‘2’ ‘3’ ‘4’) in a given set of planar layers of said output waveguide wherein the output waveguide and the further optical waveguide are aligned along an input-to-output propagation path, thereby providing substantial alignment of said output optical waveguide and said further optical waveguide, said further optical waveguide is interposed between said input optical fiber and said optical component (ball lens 11, isolator 12, or ball lens 10) and wherein said optical component is interposed between said further optical waveguide. Furthermore, Tabuchi teaches an input/output optical semiconductor device (8) further comprising a waveguide (‘2’ ‘3’ ‘4’). Since the core and the claddings of the two segments of waveguides are referred to with the same numeric reference, for differentiating purposes the output waveguide will be referred to as (8) and the length of optical waveguide will be referred to as (14). The length of optical waveguide (14) on said substrate in the same planar layers of

Art Unit: 2883

said output optical waveguide (8), the length of optical waveguide is interposed between the input optical fiber (9) and at least one optical component (10, 12, 11) so that at least one optical component is interposed between the length of optical waveguide and the output optical waveguide.

FIG. 3I



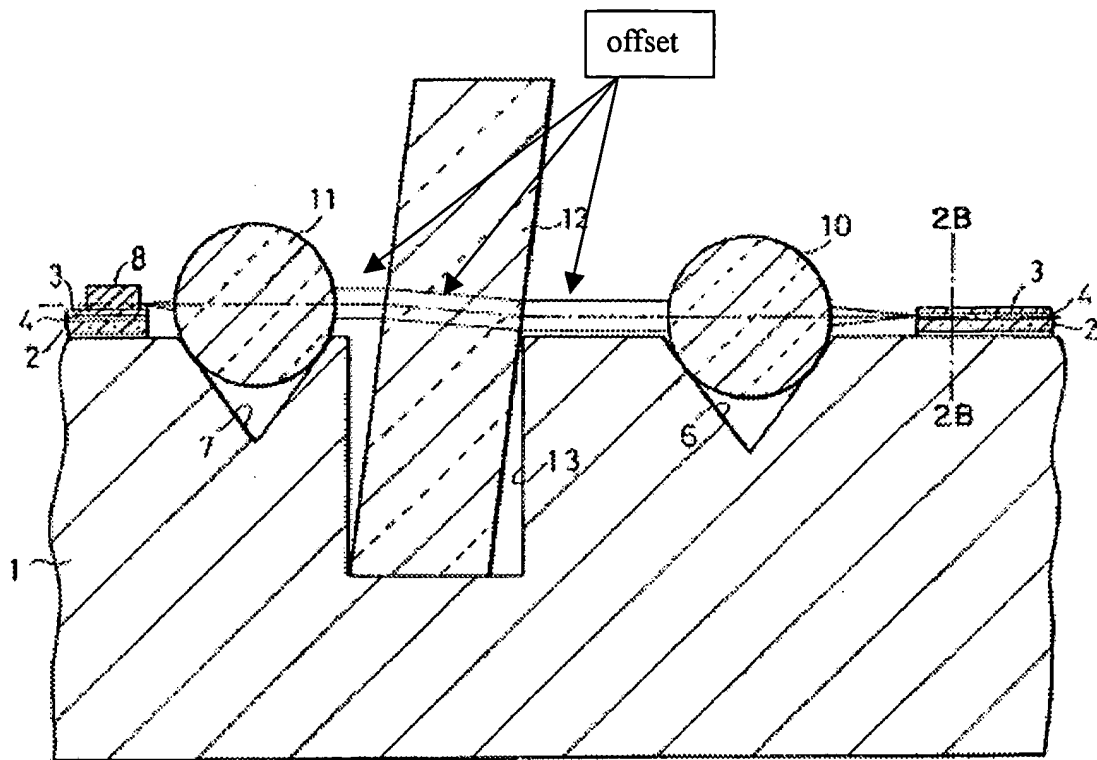
Claims 2, 7, and 16 substrate (1) is a silicon optical bench support; wherein the output optical waveguide and the length of optical waveguide are aligned along an input-to-output propagation path.

Regarding claim 8 wherein the end surfaces of the output waveguide and the length of optical waveguide are offset to a perpendicular to input-to-output propagation path and a

Art Unit: 2883

propagation path of radiation through at least one optical component is at an angle with respect to the input-to-output propagation path.

FIG. 2A



Claims 9-11, and 21-23, referring to Fig. 3J and see col. 8, lines 20-22 wherein Tabuchi discloses the optical member (12) may form an optical isolator by applying a thin laminated layer upon the substrate of the rectangular optical member (12). The examiner would like to point out that an optical isolator is a one-way filter for a range of light frequencies. Regarding claim 22, this is a functional limitation within a device claim, thus the limitation retains no patentable weight.

Claims 12-14, 17 and 24-26, in the referring figures, the round elements (10, 11) are ball or spherical lenses contained in a pyramidal hole (6a-6e and 7a-7e), fiber (9) is supported by a v-

Art Unit: 2883

groove (5). The examiner respectfully point out that the assembly of two convex lenses facing each other will naturally form the internal image and a ball lens is a composition of two congruent convex lenses.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tabuchi in view in view of Drake (US Patent 5,999,303 hereafter "Drake").

Tabuchi discloses all the limitations of claim 15, but does not disclose using optical fibers from the same fiber batch for the input and length of fiber on the substrate.

Drake discloses using input and output fibers from the same manufacturing batch having very precise lengths for both lengths of input and output fibers (col. 16, line 3-6) for the purpose of maintaining the same fiber characteristics in an optical system.

Since Tabuchi and Drake are both from the same field of endeavor; the purpose disclosed by Drake would have been recognized in the pertinent art of Tabuchi.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use optical fibers that were drawn from the same batch in implementing on one optical system. **The motivation** for using optical fibers drawn from the

Art Unit: 2883

same batch is to maintain the closely similar characteristics of the optical fibers such as having substantially same core index, cladding index, and the same low level of impurities.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tabuchi in view Harpin et al. (US Patent 5,787,214 "Harpin" hereinafter).

Tabuchi discloses all the limitations of claim 15, but does not disclose the end surfaces of the input optical fiber comprise an anti-reflective coating.

Harpin teaches applying a layer of silicon nitride to the end facet of the waveguide for the purpose of reducing backreflection (col. 4, lines 1-4).

Since Tabuchi and Harpin are both from the same field of endeavor; the purpose disclosed by Harpin would have been recognized in the pertinent art of Tabuchi.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to apply anti-reflective coating to the end facet of the waveguides that are coupled together. **The motivation** for applying an anti-reflective coating is to reduce backreflection as taught by Harpin.

Response to Arguments

Applicant's ONLY substantial arguments are:

- Tabuchi reference does not teach the further optical waveguide is disposed on the substrate in the same planar *layers* of the output optical waveguide.
- Tabuchi semiconductor device is position higher thus utilizes an angled optical element 12 to provide for the altering of direction of the radiation from offset semiconductor device.

Art Unit: 2883

Examiner's responses are:

- The recitation of the further optical waveguide is disposed on the substrate in the same planar *layers* of the output optical waveguide suggests multiple layers thus it may not be assumed the *layers* are the same height. Applicant's drawings clearly show that they are not the same height. However, the waveguide are all mounted on the SiOB (10) as Tabuchi's waveguide is mounted on the SiOB (1).
- Tabuchi reference discloses the semiconductor device is position higher than the optical fiber and planar waveguide is irrelevant since applicant claimed that the optical waveguide are aligned along an input-to-output propagation path; which Tabuchi's invention clearly does. Furthermore, Tabuchi's invention appears to be more robust since there is a height tolerance for the input light to be injected into the device, and the injected beam is still aligned and coupled to the output fiber. Furthermore, Tabuchi invention is a bidirectional device wherein either ends may be an input or an output.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

Art Unit: 2883

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

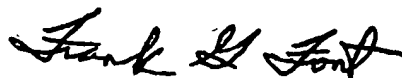
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D. Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Erin D Chiem
Examiner
Art Unit 2883



Frank G. Font
Supervisory Primary Examiner
Technology Center 2800